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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Robert D. Ainsworth

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2384

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7590

04/18/2007

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EXAMINER

ROZANSKI, MICHAEL T

ART UNIT

PAPER NUMBER

3768

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/872,216	<b>Applicant(s)</b> AINSWORTH ET AL.	
	<b>Examiner</b> Michael Rozanski	<b>Art Unit</b> 3768	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/24/06</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Response to Arguments***

1. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection. With regard to claims 1, 6, and 22, the optical fiber in Tenerz transmits pressure provided by the pressure sensor, but does not directly sense the pressure. In the same field of endeavor, Jackson (US 6,498,941) is directed to a fiber optic bundle 68 that can be a single fiber optic conduit for sensing and transmitting diagnostic information (col. 5, lines 45-59). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated the teaching of Jackson in order to eliminate the need for a pressure sensor to sense pressure directly. With regard to claim 24, the Tenerz et al. reference does not expressly recite the data processing system and the steps of operating a data processor and processing the diagnostic data. It would have been obvious to a person of ordinary skill in the art to provide said system and method steps of data processing because such is essential to be able to read/interpret the diagnostic data received. Any diagnostic and/or therapeutic data received must be fed into appropriate processing means and method for analysis.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8, 9, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tenerz et al. of record in view of Engelson (US Patent 5599492) and Jackson (US 6,498,941).

Claims 1-8, 9, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tenerz et al. of record.

In regards to claims 1-3, figure 1 of Tenerz et al. discloses a therapeutic (therefore at least during therapy applies) guidewire having an optical fiber (3) extending along the length of the guidewire for measuring intravascular pressure, column 2. Tenerz et al. furthermore teaches a high strength proximal core section by teaching use of tightly wound wire at the proximal section and flexible distal core by teaching use of flexible, resilient wire at the distal section (see col. 2, lines 25-33).

In regards to claim 4, the teaching to intravascular pressure measurement of Tenerz et al. is an example of hemodynamic blood characteristics. In regards to claim 5 the references clearly recites that the guidewire is for guiding a catheter, see Abstract. Therefore although the catheter structure is not positively recited in the reference, it is inherent that the guidewire is operatively coupled to a catheter. The sole purpose of having a guidewire is to guide a probe (i.e. catheter) coupled to it. The operative coupling of a catheter to a guidewire is inherent. In regards to claim 18 the patent teaches that the components of the guidewire can contain a compound making it visible under radiography or having a radiopaque substance as claimed by applicant, column 3 lines 23-27.

Tenerz et al. furthermore teaches a high strength proximal core section by teaching use of tightly wound wire at the proximal section and flexible distal core by teaching use of flexible, resilient wire at the distal section (see col. 2, lines 25-33).

Tenerz et al. do not explicitly teach a tapered section and a distal plunge-ground length.

In the same field of endeavor, Engelson teaches a tapered section and a distal plunge-ground length because this increases the flexibility of the guidewire where the sharpest wire turns are encountered (see col. 1, lines 41-49). It would have been obvious to one skilled in the art at the time that the invention was made to have modified Tenerz et al. to incorporate the teaching of Engelson in order to allow to increase the flexibility of the guidewire as taught by Engelson.

Tenerz et al. do not expressly teach of an optical fiber that both senses and transmits diagnostic information. In the same field of endeavor, Jackson teaches a fiber optic bundle 68 that can be a single fiber optic conduit for sensing and transmitting diagnostic information (col. 5, lines 45-59). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated the teaching of Jackson in order to eliminate the need for a pressure sensor to sense pressure directly.

In regards to claims 6-8, 9, and 22-25 Tenerz et al. teaches an intravascular guidewire having an optical fiber extending thereon for providing blood pressure measurements (example of a hemodynamic characteristic) and further features as stated above.

Tenerz et al. does not expressly teach said optical fiber movable within guidewire

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and being exposed within vasculature of patient. It would have been obvious to a person of ordinary skill in the art to have a movable optical fiber or a fiber being exposed to the vasculature of the patient because either configuration satisfies the measurement of blood pressure in any desire vascular location as taught Tenerz et al. thereby constituting functional equivalents.

The Tenerz et al. reference does not expressly recite the data processing system and the steps of operating a data processor and processing the diagnostic data. It would have been obvious to a person of ordinary skill in the art to provide said system and method steps of data processing because such is essential to able to read/interpret the diagnostic data received. Any diagnostic and/or therapeutic data received must be feed into appropriate processing means and method for analysis.

Tenerz et al. also do not expressly teach of an optical fiber that both senses and transmits diagnostic information. In the same field of endeavor, Jackson teaches a fiber optic bundle 68 that can be a single fiber optic conduit for sensing and transmitting diagnostic information (col. 5, lines 45-59). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated the teaching of Jackson in order to eliminate the need for a pressure sensor to sense pressure directly.

4. Claims 11-17, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tenerz et al in view of Engelson and Jackson and further in view of Jafari and Hurtak et al of record.

In regards to claims 11-17 and 19-21 Tenerz et al. teaches an intravascular guidewire having an optical fiber extending thereon for providing blood pressure measurements (example of a hemodynamic characteristic).

In regards to the claims 11, 15, and 16 Tenerz et al. reference does not expressly teach said optical fiber movable within guidewire and being exposed within vasculature of patient.

It would have been obvious to a person of ordinary skill in the art to have a movable optical fiber or a fiber being exposed to the vasculature of the patient because either configuration satisfies the measurement of blood pressure in any desired vascular location as taught Tenerz et al.

In regards to claims 11-14 and 19-21 Tenerz et al. does not teach specific structure components of guidewire comprising distal core section, proximal core section, connecting member, atraumatic distal tip, flexible coil disposed about distal core section, shaped ribbon coupled to distal core section, atraumatic tip including a metal or polymeric material, and a clear polymeric jacket disposed about distal core section, said clear polymeric jacket coupled to at least one point along an outer surface of the distal core section, the atraumatic distal tip coupled to a distal end of clear polymeric jacket.

Figure 1 of Jafari discloses a therapeutic guidewire (10) comprising an elongated body having a distal core section (12) coupled to a proximal core section (11) by a connecting member (13) and an atraumatic distal tip (24) formed at a distal end (21) of the distal core section (12). The device further comprises a flexible coil (22) disposed about the distal core section (12) and coupled to at least one point (25) along the distal

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core section (12). A shaped ribbon (23) is shown within the therapeutic guidewire (10), columns 5-6. The atraumatic distal tip (24) is coupled to the distal end of the flexible coil (22). The atraumatic tip is formed with a solder (includes combination of gold and tin which satisfies applicant's limitation to metal or hardenable polymeric material, column 5, lines 56-61).

The Jafari reference provides evidence that said improved guidewire structure enables advanced access throughout and is easily maneuverable within the vastly branched vascular, column 8 lines 1-29.

It would have been obvious to a person of ordinary skill in the art to incorporate the guidewire structure limitations of Jafari into the system of Tenerz et al. because the structure of Jafari improves on the movement of a guidewire within the vascular of the body.

Tenerz et al. in view of Jafari do not expressly teach a polymeric jacket disposed about the distal core. In the same field of endeavor, Hurtak et al. teach a plastic tip as an alternative to glass or metal as this is a well know functional equivalent material for jackets used with guidewires (see col. 3, lines 60-64).

Therefore, it would have been obvious to one skilled in the art at the time that the invention was made to have modified Tenerz et al. in view of Jafari and incorporated the teaching of Hurtak et al. as an alternative material used in jackets with guidewires.

5. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tenerz et al. of record in view of Engelson (US Patent 5599492) and Jackson and



further in view of Amundson et al.'346 (US Patent No. 6,178,346).

Tenerz et al. of record in view of Engelson (US Patent 5599492) teach all the elements of the current invention except for the optical fiber conveying an image.

In the same field of endeavor, Amundson et al.'346 teaches the use of an optical fiber for conveying an image in combination with a guidewire (see col. 31, line 40-col. 32, line 29). Therefore, an optical fiber is capable of conveying an image.

It would have been obvious to one skilled in the art at the time that the invention was made to have modified Tenerz et al. in view of Engelson and incorporated the teaching of an optical fiber being used not only as a pressure sensor but also as an imager in order to transmit an image of the area of interest for monitoring while the therapy is ongoing.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Rozanski whose telephone number is 571-272-1648. The examiner can normally be reached on Monday - Friday, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*MR*

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